

REMARKS

Upon entry of this Amendment, claims 2-9 are all the claims pending in the application. Of these claims, claims 2, 4, 5 and 8 are in independent form. Claim 1 is cancelled without prejudice or disclaimer. Claims 2-4 are amended and new claim 9 is added. No new matter is presented.

In the Office Action, the Examiner objected to the specification and to the drawings, rejected claims 1, 3-6 and 8 under 35 U.S.C. § 102(b), and rejected claim 7 under 35 U.S.C. § 103(a). Further, the Examiner objected to claim 2 for depending from a rejected base claim, but indicated that the claim would be allowable if rewritten in independent form including all the limitations of the base claim. The outstanding objections and rejections are addressed as follows.

Objections to the Specification and Drawings

Regarding the objection to the specification, Applicant notes that the abstract is amended to delete “(Fig. 3)”, as suggested by the Examiner. Further, with respect to the objection to the drawings, Applicant notes that replacement Figures 4, 5, 13, and 14 are submitted herewith which include the “Prior Art” designation. Accordingly, withdrawal of these grounds of objection is requested.

Claim Rejections - 35 U.S.C. § 102(b)

Claims 1, 3-6 and 8 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Rathbun (U.S. Patent No. 5,706,095).

With respect to the rejection of claim 1, Applicant notes that this ground of rejection is moot in view of the cancellation of this claim. Further, formerly dependent claim 2, which the Examiner indicated as containing allowable subject matter, is rewritten in independent form and includes all the limitations of the previous form of claim 1. Thus, claim 2 should be allowed. Also, Applicant submits that claim 3 is allowable at least by virtue of depending from claim 2, and allowance of claim 3 is therefore requested.

Further, Applicant notes that claim 4, which defines an image forming method which recites similar limitations to the image forming apparatus claimed in claim 2, has likewise been amended to incorporate the subject matter of the previous dependent form of claim 2. Therefore, method claim 4 should be allowed for the same reasons as above.

With respect to claims 5-8, Applicant traverses these rejections and submits that Rathbun fails to anticipate all the limitations of independent claims 5 and 8, which respectively define an image forming apparatus and method.

For instance, Rathbun teaches a developer application roll 204 which bears a mass of colored toner 312 on a surface 204A thereof (shown in Fig. 9; see col. 7, lines 29-44 and Fig. 2). As taught by Rathbun, the embodiment of Fig. 2, which describes an alternate capacitive based sensing system, differs from the printing system of Fig. 1 in that the embodiment of Fig. 2 teaches a developer application subsystem 200, and the subsystem 200 includes a donor roll 202 which provides “developer material” to the developer application roll 204. Further, the developer application roll 204 is arranged abutting on a photosensitive member, which is the belt 100. (see Rathbun at col. 5, lines 36-50).

As is readily apparent from the description and the arrangement discussed above, the developer application roll 204 develops an electrostatic latent image on the photosensitive member 100 by applying developer material which is provided from the donor roll 202 to the photosensitive member 100. (see Rathbun at col. 7, lines 35-37).

Considering such a function of the developer application roll 204, if the arrow indicating a rotating direction of the developer application roll 204 as shown in Fig. 2, is correct (i.e., the direction of rotation of developer application roll 204 is not incorrectly illustrated), the mass of colored toner 312 on the roll 204 is not a developed image. Rather, the mass of colored toner is developer material remaining on the roll 204 *after* the development of the photosensitive member 100.

On the contrary, if the arrow indicating the rotating direction of the developer application roll 204 in Fig. 2 is incorrectly illustrated (i.e., if the developer application roll rotates in the opposite direction as the arrow indicates), the mass of colored toner 312 on the roll 204 is the developer material supplied from the donor roll 202 to the roll surface 204A. Thus, the mass of colored toner would still not be a developed image but a pre-developed form.

Therefore, regardless whether the arrow indicating the rotating direction of the developer application roll 204 in Fig. 2 is correct or not, the developed mass of colored toner 312 described by Rathbun on the roll 204 is not a patch image formed by developing an electrostatic latent image, as defined by claims 5 and 8.

In addition, considering the description of the developer application roll in Rathbun at lines 29-44 of col. 7, the developer application roll 204 in Fig. 2 does not correspond to an

intermediate member 110 shown in Fig. 1. Rather, the developer application roll corresponds to rollers 11a, 11b, 11c and 11d. For example, Rathbun describes the rollers 11 as advancing the liquid developer material to the development zone. (Rathbun at col. 5, lines 3-10 and lines 56-59). By contrast, Rathbun teaches that a developed multi-layer image is transferred to a recording sheet by the intermediate member 110. (Rathbun at col. 6, lines 24-41). Thus, rollers 11 are not transferring a developed image.

Therefore, Rathbun fails to teach or suggest *at least* the claimed feature of irradiating light upon a toner image as a patch image transferred onto the transfer medium and receiving light from the patch image. Accordingly, Rathbun fails to anticipate all the limitations of independent claims 5 and 8, and reconsideration and withdrawal of the rejection of claims 5 and 8 is requested. Further, Applicant submits that claims 6 and 7 are allowable *at least* by virtue of depending from claim 5, and should therefore be allowed.

Claim rejections - 35 U.S.C. § 103(a)

Claim 7 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Rathbun in view of Morrison et al. (JP 06-236078). As discussed above, Applicant submits that claim 7 is allowable at least by virtue of depending from claim 5, and allowance of claim 7 is therefore requested.

New claim

For additional claim coverage merited by the scope of the invention, Applicant is adding claim 9, which recites the “optical sensor includes only a single light emitter and a single light receiver.” Applicant submits that this feature is neither taught nor suggested by Rathbun.

For instance, in the optical sensor taught by Rathbun, one optical sensor is required for each color, therefore, when it is applied to the embodiment shown in Fig. 1, which has four separate color bitmaps, a total of four optical sensors are needed.

By contrast, according to the arrangement defined by claim 5, an optical sensor irradiates light upon a toner image as a path image which is transferred onto the transfer medium and the optical sensor receives light from the patch image, regardless of the number of toner colors. Thus, as recited by claim 9, the optical sensor may comprise only a single light emitter and a single light receiver.

Moreover, Applicant submits that claim 9 is allowable at least by virtue of depending from claim 5, and allowance of claim 9 is therefore requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/693,648

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23373

CUSTOMER NUMBER

Date: June 29, 2005